

INL Intelligence

Volume 6, Issue 11 – November 27, 2006

A high-level monthly briefing on operations and activities at the U.S. Department of Energy's Idaho National Laboratory
Work at the lab advances the Department's strategic priorities of energy security, nuclear security, scientific discovery and environmental responsibility.

■ **INL Technology to be Installed at Air Force Base**

INL's award-winning Idaho Explosives Detection System is being installed at Ohio's Wright-Patterson Air Force Base for field testing. The IEDS is designed to nonintrusively interrogate cargo trucks before they get near high-profile targets like federal buildings, military bases or embassies. The system uses pulsed thermal neutron generation to saturate a vehicle with neutrons at a rate of 2,000 repetitions per second. This rapid interrogation causes the molecular makeup of materials inside the vehicle to excite and emit gamma rays. A series of 32 detectors identifies the signatures of the gamma rays and alerts operators if explosives are present. The entire process takes less than 300 seconds and leaves no residual impact on the vehicle or materials inside. A team of 45 INL scientists, engineers and technicians has spent nearly four years developing the portal-style system.

■ **Major Maintenance Completed on INL Test Reactor**

Maintenance teams have concluded a three-month effort to assure the Advanced Test Reactor can continue its vital missions of supporting nuclear energy research and producing key medical and industrial isotopes. Work included more than 350 replacements and refurbishments in support of the reactor's Life Extension Program, as well as more than 200 technical safety inspections and surveillance tasks. Specific actions included replacing one set of test loop primary coolant pumps, refurbishing a second set of test loop primary coolant pumps, refurbishing electrical switchboards and associated electrical breakers, overhauling the plant's two diesel generator crankcases, refurbishing the overhead water tank, and completing numerous other normal repairs. "These activities are important to making sure that ATR continues to operate safely and reliably for several more decades to come, just as it has in the past," said David Richardson, associate laboratory director for Nuclear Operations.

■ **Professional Society Taps INL Scientist for Leadership Role**

INL's Leonard Bond has been elected by members of the Institute of Electrical and Electronics Engineers (IEEE) to be the Region 6 delegate for 2007-2008, and Region Director and delegate on the IEEE Board from 2009-2010 for 12 western states – including Idaho. IEEE's Region 6 consists of 56,000 members, of which more than 1,000 are Idahoans. Bond is also on the affiliate faculty of University of Idaho and Idaho State University. IEEE is the world's largest technical professional society with 365,000 members in 150 countries.

■ **Planning for Next Generation Nuclear Plant Continues**

The U.S. Department of Energy has announced that INL will make awards valued at about \$8 million to three companies to perform engineering studies and develop a preconceptual design to guide research on the Next Generation Nuclear Plant (NGNP). INL will issue a contract to Westinghouse Electric Company for the preconceptual design of the NGNP, and will later issue contracts to AREVA NP and General Atomics to perform complementary engineering studies in the areas of technology and design tradeoffs, initial cost estimates and selected plant arrangements.

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